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ABSTRACT

Distance learning in Australia has become much more popular in the last 20 years, with off-campus study increasing by 331 percent. At Central Queensland University, approximately half of the 9,000 students enrolled are studying at a distance. In order to provide high-quality distance education, a university, through its employees, must "care" for the students enrolled in these programs. Information technologies are increasingly used, and such techniques as videoconferencing, telephone conferencing, and telephone tutorials are a popular means of providing access to higher education and support for distance students. Some barriers to student access to higher education include the following: the expectation that students will have the required technologies, although many cannot afford them; gender bias against the women who make up most of the distance student body; and students who do not know how to use the information technologies if they can get them. Suggestions for improving access to and success in higher education for distance students are as follows: community use of governmental education and training resources, community use of business and industry resources, and corporate sponsorship of community learning. If universities are to continue to fulfill their mission, they must balance technology with caring in order to help students access and profit from education. (Contains 20 references.) (KC)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Distance Learning' and Information Technology: The Rhetoric and the Reasonable

Dr Trevor Davison

Introduction

[Over the period 1974-1994] off campus study has jumped in popularity compared with internal study. External numbers increased by almost 69,000 or 331 per cent. External students now make up 12 per cent of all enrolments ... Queensland and the Northern Territory show the greatest rates of increase in student numbers (Department of Employment, Education and Training, The Australian, August 16,1995, p23).

Through innovative educational approaches, including the offer of distance education, the University will provide higher education access and opportunity for diverse community groups and maintain its present strong emphasis on a caring environment (Central Queensland University Handbook, 1995).

The University ... welcomes applications from persons at least 21 years of age, who do not have formal qualifications for entry ... (ibid, p2-7).

In 1995 there are approximately 9000 people enrolled with Central Queensland University (CQU). Around 4500 of these are studying at a distance and are often unable to easily access the various sites that can support studying at a distance in central Queensland; eg, CQU campuses, TAFE colleges and Open Learning Centres

CQU claims to be committed to providing higher education access and opportunity through distance learning and moreover, that it will maintain its present strong emphasis on a caring environment. It also claims to be particularly welcoming of adult students. Surprisingly, and in contrast to my usual cynicism of mission statements, I find myself very much agreeing with these particular aspects of CQU's.

Caring is a human quality and one that must be evident in individual human actions if it is to be of any value. Universities can not care. Universities can only care through the work of their employees. Trying to create ways and means of providing better access to, and success in, higher education for adult learners at CQU, especially those who have no previous qualifications from, or experiences with, higher education institutions is central to my daily activities. I consider creating these ways and means as evidence of an ethic of care in my own work.

Conceptually, 'caring' is a close relative of 'empathy'. Hartman (1984) argues that empathy requires a kind of "fusion" between empathizer and empathizee, even if it is just a temporary one (p223) and Noddings (1984) that caring requires trying to "... apprehend the reality of the other" (p14).
Apprehending the reality of the other requires us temporarily becoming the other as best we can. As a lecturer, caring for the students I work with requires me apprehending each of their realities as best I can. This paper is about how I try to achieve this in the use of information technologies to aid learning at a distance. It is also about some of the paradoxes and tensions that arise in using information technology to provide a caring environment and creating the conditions for better access and success for adult learners studying at a distance.

CQU and distance learning

Queensland is somewhat of a leader in distance learning. The University of Queensland has offered teacher education by distance since 19112 . CQU is no slouch when it comes to distance learning and the use of information technologies for educational purposes. Its Division of Distance and Continuing Education was recently nominated as a national distance education centre by the Right Honourable Simon Crean, Minister for Employment, Education and Training.

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Distance learning with CQU is predominantly a paper based activity where much use is made of printed study guides and supporting resource material. CQU's justified reputation for quality paper based distance materials is a result of a mostly collaborative effort between academics, instructional designers, editors, printery staff and other equally important employees such as maintenance workers and administrative staff. CQU continues to improve the quality of its paper based products and has recently invested nearly $1 million in printing equipment that is capable of producing distance materials in a "student-ready" format from data transmitted electronically from a lecturer's desktop.

While print-based materials are still the core resource in distance learning at CQU, it has also applied its creative energies to other information technologies. Recently, it has received acclaim for the CD ROM-based training program it produced for equipment operators at Curragh Mine. More and more use is also being made of computer mediated communication. CQU library offers a virtual workshop in library research skills and both the Faculty of Business and the Faculty of Math and Computing offer units of study that involves students and lecturers communicating via electronic mail and bulletin boards. In both cases students are also encouraged to research library resources electronically.

Various faculties throughout CQU, including mine, have increasingly incorporated video-conferencing in support of student learning. Coupled with associated technologies like document cameras, video-conferencing has allowed for the social interaction that is often essential to success in distance learning (Sellinger, 1995, Verduin, 1991, Nielsen, 1991). The Faculty of Education has been a leader within the university in this regard and alone with its recent purchase of an audio graphics unit it continues to try
and create a more flexible and open approach to access to, and success in, higher education.

Telephone conferencing and telephone tutorials are still a popular means at CQU of providing better access to higher education and support for distance students. Voice mail is also being used to not only deal with administrative matters but as a resource to facilitate distance learning. Short lectures and responses to study questions are being recorded on voice mail systems for students to access when the need arises. Many lecturers also spend a considerable amount of time, both at work and home, on the telephone with students. Some travel to where groups of students are located to provide workshops and seminars.

It appears then that CQU is not hesitant in utilizing information technologies in support of distance learning. However, for me there is always the worry that university employees become too easily seduced by the "whizz-bangishness" of CD-ROMs, multi-point video conferencing, audio graphics and computer-mediated communication and forget the university's fundamental aims as expressed in its mission statement. That they forget to ask in what ways will the use of any information technology provide for better higher education access and opportunity for diverse community groups, maintain a caring environment and help them succeed, help them learn3.

Some barriers to student access in higher education (via CQU)

In its best light, a university like CQU utilizing the various information technologies and providing the support mechanisms described in the previous section can be viewed as a university trying to provide higher education access and opportunity for diverse community groups and a caring environment. Recognising that potential students are spread far and wide and frequently disadvantaged because of this, CQU can be considered as sending the explicit message that it is empathetic to what accessing higher education and being successful in it might look like to students at a distance from it. As a result, it tries to construct and implement alternative means of access and success for them. Providing the support and resources for a lecturer to offer telephone tutorials after 6pm can be considered as an "institutional" apprehending of the reality of many distance students. New electronic/digital ways of communicating with people and accessing information seems to offer some imaginative opportunities for CQU continuing this claimed caring tradition.

Yet in using information technologies for these purposes a tension, perhaps paradox, becomes obvious: Expecting students to experience higher education via information technologies requires them first possessing or having access to the requisite technologies "at their end". Therefore, for some students (those who fail to meet this requirement) a university using particular information technologies might be the very antithesis of
empathy and contribute to less access and success in higher education for them. This is possibly the case for many of the students I work with.

Nearly all of my teaching work involves students who are over 25 years old and studying at a distance. Most of them are already or hope to become employed as teachers, trainers, teachers aides and other kinds of education workers. Teaching and training work is not particularly highly paid work. The teachers aides I work with, for instance, are employed mostly part-time and earn approximately $11 per hour. A basic computer package able to handle the products and support systems for using what some of the information highway offers is approximately $2000-$3000. Joining Oz email, a typical "provider" of access and services to the information highway, costs $25 with a $10 per hour usage charge ($5 per hour off-peak). Asking some of the students I work with to study in higher education via this particular information technology (computer-mediated communication) seems a total mis-apprehending of their reality.

For these particular students the costs just mentioned are equivalent to the deposit on a reasonable car and the subsequent higher purchase repayments. Given the often selfish nature of studying, members of a family unit that such students are a part of might well feel a bit peeved that so much money is going towards studying. The students' own voices are important here as they try to balance these conflicting interests:

Study is a financial burden, If you fix that on to the rest of the family - with the time- that's a burden, yes, the cost of textbooks, travel, all the rest of it - it means that its' affecting things that maybe should go to your family. Now for instance, I'm not going out and borrow $3000 to set myself up with a computer (Student comments in "Report to the Distance Education Working Party Central Queensland University", August 1995, p37).

I love technology. I do like it and I can hardly wait to get on and test it out but I can see that the learning curve associated with some of these things is, like the expense, and the learning curve - sometimes it's not worth it. (ibid)

Balancing conflicting interests like these is often par for the course for many adult learners studying at a distance. Some, however, have more specific issues to contend with. For instance, Perraton (1993) has argued that women dominate distance education and my experiences reconfirm this. The majority of the students that I work with are women and many of them have never studied with a university before. Those residing in rural areas have only witnessed automatic telephone dialling in the last five years and even now they cannot make "local" calls. All their calls are timed, long distance "community" or "pastoral" ones. They also have to tolerate "... a lack of itemised accounts, unacceptable levels of interference and endure great difficulty having faults corrected" (Moore, 1995). So while it might be 5 the case that much of information technology is "gender-biased" (Spender, 1994, pl3), and hence create specific difficulties for these students they will also be struggling with more immediate concerns. They will have to first acquire or access the technological hardware and support systems and get it all to work well before they can begin to worry about how to use it to their advantage4.

It gets worse for students in circumstances like this when we consider how much is riding on the telephone system as the vehicle for travelling on the information highway5. The Australian Communications Minister, for instance, wants to "... build the world's largest electronic smorgasbord of business, education, entertainment and phone services, giving Australians the widest range of choices on

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earth ... [y]our phone number will follow you all round Australia. It'll behave like a cordless phone at home or in the office and like a mobile when you're wandering" (The Australian, August 2, 1995). This same kind of technocentric utopianism is also evident in the claims of some university staff. Gregor, (1995), for instance, believes "... increasingly our students will expect [emphasis added] the use of CMC (computer-mediated communication)" and Andrews and Bowser (1995) claim that "[c]ellular telephones, modems, the Internet, facsimiles etc are now everyday [emphasis added] tools" (Andrews and Bowser, 1995, p86).

Much hinges here on how homogenous this 'our' is when university staff refer to "our students" and in whose "everyday" we might find the cellular telephones, modems and computers. While it is hard to imagine a home in Central Queensland without a telephone it is less hard to imagine that for some of the students I work with telephones will have limited use because of cost, technical difficulties and/or lack of confidence dependent on who the call is being made to6. Distance students working under these conditions are positioned outside of the previous conception of 'ours' due to particular technologies not being "everyday" to them.

Some barriers to student success in higher education (via CQU)

I'm not an expert on e-mail and I don't know too much about it, but I would say there must be some potential in there (Student comments in "Report to the Distance Education Working Party Central Queensland University", August 1995, p36).

I look at this e-mail and think what the hell's that. No. Sorry, I'll just stick to the telephone and the field that I sort of know (ibid).

It's fantastic (e-mail) once you get it to work. Like it's taken me all semester ...1 don't know how much time that I have spent on the phone to the help desk (p37).

A lot of people (will not use other communication technologies) because of the lack of knowledge of how to use them, so unless it's really needed, they won't use it (p36).

The oppositions and juxtapositions that the students' comments reveal parallel the tensions I feel in my own work. Up until now I have focused on the use of information technology in higher education primarily in terms of access. But what about success? I want to use information technology to provide better access to higher education for students but the very use of it might hinder their success. 'Success' here means their becoming better teachers, trainers and teachers aides in the context of a caring environment provided by the university. But how will that be achieved as information technology becomes increasingly widespread in distance learning?

Success in higher education via information technologies requires being skilled in their use and being willing to use them. Yet skilled use of anything is often dependent on frequency of use. Distance students using information technologies in their studies will have to devote a considerable amount of time in learning how to use them and using them to facilitate their distance studies. Here is another paradox: As distance learning will be increasingly electronic-based, students will be less and less buying or using "hard" resources to support their studies and spending more time "on-line" instead (Floridi, 1995). The very manner in which a university may organize distance learning could mean slower and/or less experienced learners facing not insignificant costs for "on-line" time. On line distance learning premised on user-pays-for-time-on-line can result in less use. And less use can contribute to a lack of success.

To make matters more complicated, much of adult learning in Australia is increasingly being built on self-paced and self-managed processes. This may mean more time on-line. Accessing and manipulating information electronically seems to "eat" time at a rate we are often not aware of and so the personal costs will be more than financial. The less technologically skilled and/or inclined will be doubly disadvantaged and being both relatively time and financial resources deficient might provide just the right

conditions for them dropping out of studying.

A university moving towards providing distance learning via information technologies whose aims include providing students with the conditions for success in higher education must also look within. It must persuade its staff of the benefits of such a move and ensure that they too become appropriately skilled. CQU provides professional development activities for staff in the use of various information technologies but many lecturers still use nothing else but the written word in their distance teaching. For some, there is little or no attempt at utilizing teleconferencing, audio cassettes or even pictures with study materials.

Yet when the institution is successful in getting staff to consider new ways of facilitating distance learning there is the danger these new ways will be simply used to "... imitate existing familiar teaching situations and strategies ... via a variety of technologies" (Andrews and Bowser, 1995). Instead, the university must encourage staff to use the technology to better help people learn even if it means changing or giving up on the familiar. It should be used to achieve what we know about distance learning that makes it worthwhile for students. It should contribute to providing good student support, quality communication between lecturers and students, and learning materials that promote reflective inner interaction (O'Hagan 1995). It should encourage dialogue between the students own life experiences and professional convictions and the content of the study material (Parer, 1995)7. And it should help reduce that feeling of "social distance" (Ramaiah and Srinivasacharyulu, 1991) that is often a significant factor in students not completing their studies by distance learning8.

A university like CQU introducing information technologies hoping to create better access to, and success in, higher education for distance students whilst also maintaining a caring environment for them will fail if the total workplace culture and its operations are not taken into account. Changes in workplace practices other than those concerning individual lecturers will also have to be evaluated for their consistency with these aims. Industrial, administrative and legislative systems necessary to the functioning of higher education will all need critical analysis. New understandings of a "working day" will be needed as lecturers begin to communicate with students asynchronously and are able to work more and more from home. Notions about "beginnings" and "ends" of a course of study will have to shift from time-based perspectives to an outcomes one and this shift (which is already practiced somewhat liberally at the graduate level) will also have to work its way into more specific practices like the demise of deadlines for the submission of assignments. Long and short-term strategies will need to be devised to accommodate these major workplace cultural changes that are necessary for new work in the institution. Strategies that must focus on both the multiple realities within the university and the ones that students bring to it.Three suggestions for improving access to, and success in, higher education for adult learners studying at a distance

1. Community use of governmental education and training resources

If individual teachers and trainers might not be able to afford the various information technologies universities and other educational institutions are increasingly using in their operations, and access and competent use of these technologies is going to be necessary for success in their studies, then what is required is a way of subsidising or sharing the costs involved. What is required is the sharing or communal use of resources to facilitate the development of learning communities9.

In my work this means persuading the university to develop various ways of helping students with their costs. This could include CQU buying equipment in bulk and selling it to students at a reduced cost or renting it out to them at an affordable rate. Rent-to-buy agreements could also be devised. If necessary, problems associated with the non-return of equipment could be addressed with measures like grades and/or awards not being given until equipment is returned and/or financial obligations fulfilled .
Many communities already have some of the necessary groundwork in place for a wider use of various governmental resources. In Queensland many students unable or unwilling to purchase any necessary equipment will be fortunate enough to have somewhat of a head start. The Queensland State government

has committed $65 million to equipping every state school and library with a computer and modem (hopefully, there will also be support given for the various technical difficulties like poor and/or infrequent "connections"). Many TAFE colleges are also already equipped to provide support for distance students and throughout Central Queensland Open Learning Centres are already housed in some schools.

There will have to be some major cultural shifts to accommodate a wider community use of governmental education and training resources. For instance, parallel with the radical shifts in conceptions of time that the use of the information highway creates, so too will our conceptions of time in the contexts of TAFE colleges, schools and libraries have to change. The still dominant "nine-to-five" working day mentality will have to go and so too the "working week"!¾. All these sites will more than likely have to increase to 24 hour operations (to cater for all kinds of learners and personal circumstances) and they will have to get used to and actively encourage a wider range of people being present in them. There will have to be more trust about who should be allowed in and who can use the facilities and resourcesll. All this will require radical restructuring in the administrative and legislative systems that support such governmental institutions.

2. Community use of business and industry resources

Another suggestion is to encourage businesses and industries to make their resources and facilities available to the community with the view to contributing to the development of learning ones. Most communities in central Queensland would probably perceive local businesses and industries as an essential part of them. Very often these businesses and industries have the resources to fund the purchase of information technologies or already possess them for "in-house" use. I have already mentioned how Curragh Mine is using CD-ROM technology. Many other organisations have their own video conferencing facilities and some are already connected into computer-mediated communication networks.

This community use of business and industry resources (coupled with a more widespread use of governmental resources) can provide valuable opportunities for success in higher education in a very broad sense. Distance students using these resources would necessitate a considerable amount of communication and collaboration between all parties. Communal use of business and industry facilities to support learning communities would force a sharing of space and time and allow for a greater possibility of multiple views and perspective's being aired and considered. As well as facilitating a very richly democratic enactment of the "getting to know each other" that is invaluable to distance learning (Ormsby, 1995), it would also foster the consideration and understanding of multiple perspectives necessary to democratic communities themselves. It would contribute in a very important way to those involved "apprehending the reality" of others and the exercising of empathetic capabilities in general.

This necessary communication could be the basis for much stronger links being created between universities and business and industry. This is something that has been frequently argued for though little headway has been made in achieving it. Compacts could be created between specific companies, local communities and higher education institutions in order to address community issues in return for university awards. For instance, a substantial community issue like what skills and understandings are required for a major employer and how the preparation of people for such work affects their long term welfare could be addressed by the community at large and studied from multiple perspectives. Workplace trainers might study in an area reflecting the employer's major interest - having well prepared employees - while other members of the community might study different themes like how the local school balances responding to this employer's specific interests without limiting each student's general educational development. In this context I see nothing fundamentally contradictory in distance students gaining various CQU awards sponsored by BHP or any other business or industry willing to support its local learning community.

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3. Corporate sponsorship of community learning

If universities are going to increase the chances of access and success in higher education for distance students through the use of information technologies, then this suggests a substantial market for various information technology manufacturers, suppliers and support industries. For example, some of the technologies discussed in this paper would necessitate an increase in the ownership of computers, modems, televisions, VCRs and telephones. All of these require quite sophisticated service industries and appropriately skilled employees in support of the use of them. Suppliers of information technology hardware, software and support services could contribute to the development of learning communities with donations or loans of equipment and/or services.

Corporate sponsorship of learning communities through the donation or reduced costs of information technology hardware and supporting services also guarantees a secondary market. Fairly stable niche markets that learning communities hold the possibility of becoming allow for some imaginative discounting that would be profitable to the suppliers and advantageous to the purchasers/users. Follow-on sales central to establishing and maintaining long-term customers would be enhanced by the quality of products being made known to potential purchasers by initial ones.

Corporate sponsorship in education and training is not a new idea. Telecom Australia, while not donating hardware and support, has recently offered
research funds for projects that focus on the use of communication technologies for rural communities. In the UK, Apple Computers has contributed in a very significant way to helping reduce the shortage of maths teachers there (Pearson, 1993). Working with the Open University it has provided some distance students with a computer and modem. Supported by tutors and practicing teaching at specific schools, these students have been able to study in a manner consistent with much of what I have argued for here. They have created learning networks and student support groups, communicated with university staff and each other via the computer and supported their studies with electronic research activities.

Corporate sponsorship of formalised learning, whether community or otherwise, can create its own tensions of course. Tilting the balance towards better access and success in higher education and away from unreasonable profits will require legislative policies and practices restricting the monopolising of markets and the creation of cartels. Institutions who will be providing the formal credit for whatever learning takes place will have to ensure that their educational standards are not compromised.

Conclusion

There is much rhetoric about the need for everyone to become information technology literate and skilled. Perhaps we should first ask who can afford this technology, what will it be used for, who will benefit by its use and who will not. These questions are particularly pertinent for institutions designed to help people learn.

As well as asking these questions, CQU is also obliged to ensure that whatever technologies it decides to adopt are consistent with its mission of maintaining a caring environment for students, especially adults who are learning by distance. Trying to not let my imagination limit the use of information technologies to create better access to, and success in, higher education I have suggested some ways of creating learning communities as a basis for CQU not losing sight of its claimed mission.

The future may well reveal flexible learning on a near global scale, where end products (university awards) are the result of complex and continually unique "electronic" arrangements between institutions. From the students' perspective this might be the ultimate in 'resource-based' education. From an administrative perspective it must sound like trying to control universal chaos!2. I have suggested how this could be supported locally by "real" people, utilizing resources that might be community owned and shared.

Imaginative ways of helping distance students personally accessing information technologies through subsidised costs or communal use of resources to address community concerns suggests better access and increased possibilities of success for the distance students involved. It also suggests that the empathizing skills of those involved can not help to be tested and hopefully improved as a result. If CQU is central to organising
and facilitating arrangements like these then it will be making considerable headway in achieving its mission.

CQU's implied promise to create better access and success in distance education for adult learners while also maintaining a caring environment for them will be a never-ending project. So it should be. Anything less would be to imply that all possible realities have already been apprehended! The paradox of using information technologies as part of the promisekeeping process though is that they can be as fundamental to keeping the promise as reneging on it.

Postscript

Since completing this paper I have become aware of another information technology that can require little outlay from students and be used in a variety of ways to provide better access to and success in higher education for them. If CQU can find the funds to purchase an "uplink" (approximately, $250,000) then anything it wants to provide students that can be digitally coded, eg live and recorded lectures and discussions, textbased material, images and on-line computer activities can be transmitted by satellite to each student's television. To receive this transmission students will need to purchase a receiver dish ($400). Alternatively, these receiver dishes could be communal or private purchases set up in publicly accessible spaces like libraries, schools, TAFE colleges, town halls, local business and industry sites. Now that sounds reasonable!

1 'Distance learning' is an inclusive phrase. It focuses on the centrality of the student and avoids the unsustainable distinction between education and training.

2 Ironically, while some universities have slowly moved towards getting rid of the distinction between external (distance) and internal (on campus) students, due, in part, to the introduction of various information technologies, the University of Queensland has allowed its distance arm to wither. Optimistically, some University of Queensland staff now see this is a "window of opportunity [to] start investing in the infrastructure required to develop and deliver resource-based learning using the latest information technologies" (Holzl, A., Tertiary Education News, Vol 5, No3, August, 1995).

3 My concerns about how a university intends to use information technology in distance learning is more than it becoming "... seduced by the presentation capabilities of related technologies at the expense of the genuine needs of the end-user" (Crock, 1994, p.17). Using information technologies simply to satisfy the "genuine needs of the end-user" reinforces the marketplace ideology increasingly evident in much of higher education policy and practice. "Genuine needs of the end-user" talk is of the same discourse that equates the teacher/student relation with a client/provider one and a discourse that is inimical to the fundamentally educative purpose of universities.

4 A recent report on university places in South Australia concluded that people from rural and isolated areas and those in the lowest socioeconomic group continue to be under represented in higher education (The Australian, June 28,1995). What concerns me about this view that equates better access to higher education with the introduction of various information technologies is that it can make the disparities in access and success in higher education even worse. That institutions believing that simply providing the means (more technological options) is all that is required to achieve the ends (better access to, and success for, more and more people) is a belief in need of some critical analysis before any purchasing of information technology decisions are made.

5 Some of my colleagues in the US believe that cable TV will be the medium that will provide more and more access to higher education. Here in Australia though it is clear that many people will be getting neither cable TV or a cable-based telephone system. Beatrice Faust reports that "... one estimate of bringing the highway to all our keyboards [if fibre optic telecommunications is the main drag] is $20 billion if Telecom has a monopoly and $30 billion if it has to compete with Optus...The products and services - or vehicles on the highway will cost another $20 billion" (The Australian, 29/10/94). Furthermore, "[a]ny pay TV venture that laid cable to every house in Australia faced annual losses of at least $12 billion" (The Australian, 21/6/95,,p31). It will be interesting to see how much energy and resources are put into cable-based systems (which most of metropolitan Australia will have access to at a reasonable cost) compared to the satellite based systems that the rural populace will more than likely have to rely on.

6 Some of the students I work with have taken a lot of convincing that it is all right to call lecturers and ask questions of them. Some are also hesitant to call lecturers at home even when they have been informed that it is all right to do so. Both these can be explained in part by the students holding onto "traditional" beliefs about teacher-student relationships. Beliefs that were probably established in their compulsory schooling experiences, which for many distance education students were over thirty years ago.

7 Of course success in higher education at a distance requires more than just what the institution can provide. It requires a supportive and understanding partner and/or family. It also requires a lot of self discipline and personal energy. And money.

8 The use of information technologies to alleviate this sense of social distance highlights another paradox: One of the major reasons for dropping out of distance education (the loneliness and lack of interaction with others) can be alleviated by the very technology that is often viewed as anti-educational because it is claimed to provide no or limited social interaction. For distance learning this claimed anti-social technology actually provides more possibilities for the social interaction that has historically been lacking in it. As long as it devised and planned for accordingly, and the costs are within acceptable limits to all concerned, most information technologies can provide that informal and formal support system often missing but essential to success in studying at a distance.

9 The idea of learning community is not a new one. What I am trying to achieve here is to provide pragmatic ways of creating and developing them.

10 As Queensland schools begin to adopt the "competency-based" agenda (an agenda that is being implemented in many sites incorporating "self paced" methodologies), changing the general conception of time that is inherent to school systems is going to be increasingly necessary for schools to help students learn consistent with this agenda. Schools will have to allow the use of their resources and facilities on a much more flexible basis. "Periods of study" and "years attended" may soon be things of the past.

11 Because the students that I work with are employed in both school and non-school settings I have heard many stories from both sides of the fence: Non-school teachers and trainers are critical of school teachers teaching "industrial" subjects and schoolteachers are critical of the possibility of non-school teachers being asked to teach in schools. My suggestions here are aimed towards the removal of the "fence" in a way that is beneficial to all.

12 Perhaps this will be one of the more important functions of EdNA (Education Network Australia). The Federal government appears to believe so: "For the first time, EdNA will link all schools, TAFE colleges, universities and other education and training providers across Australia, as well as internationally through a service network and modern technologies for interactive communication" (The Right Hon Simon Crean, The Australian, 13 June 1995).

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